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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,271	06/26/2001	Jon A. Parker	11-1123	2159

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EXAMINER	
MERED, HABTE	

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/892,271	PARKER, JON A.	
	Examiner	Art Unit	
	Habte Mered	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 06/26/01 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 8, paragraph 23 – the acronym SCM needs to be expanded and explained.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1, 2, 4, 5-8, and 10-17** are rejected under 35 U.S.C. 102(b) as being anticipated by Beale et al (US 4, 709, 365) hereafter Beale.

3. Regarding **claim 1**, Beale discloses a system as shown in Figure 1where a set of 6 reconfiguring devices (i.e. nodes) are connected in series in a ring. See Column 7, Lines 33-36. Also Beale shows in Figure 1 that the nodes are interconnected serially by primary ring 18 and secondary ring 19. Each node as shown in Figure 2 has a control unit and the functionality of controller is distributed across each node in the ring. See Column 2, Lines 29-41 and Column 7, Lines 38-41. Each node is responsible for detecting faults and choosing a transmission path that isolates the detected fault to ensure the ring (data bus) is operational to accommodate inter-node communication. Figure 3 shows a fault being removed between Stations (i.e. nodes) 1 and 2 and a new path or sub-ring defined where node 2 has acted as a controller. See Column 8, Lines 51-62. The system invented by Beale is able to detect any kind of failures involving the nodes and the links between the nodes. See Column 2, Lines 67-68, Column 3, Lines 1-2 and Column 3, Lines 25-30.

4. Regarding **Claims 2 and 15**, by definition a bus forms a daisy chain when the nodes are inter-connected sequentially in series. Also by definition a daisy-chained bus when it forms a loop becomes a daisy-chained ring. The system, invented by Beale and shown in Figures 1and 2, has the output of one node which also constitutes the transmit side on the primary ring for that node (i.e. Figure 2, item 11) is in turn connected to the input of the next node which in reality is the receive side on the primary ring of the same next node (i.e. Figure 2, item 9) and this pattern is repeated in series for all the nodes in effect forming a looped daisy-chain bus (i.e. a daisy-chained ring). See Column 7, Lines 65-68 and Column 8, Lines 16-25.

5. Regarding **claim 10,** Beale discloses that the controller functionality is distributed amongst the nodes in the ring. The controller mechanism is contained in the node as shown in Figure 2. See Column 2, Lines 34-36 and Column 7, Lines 39-41.

6. Regarding **claims 11-13 and 16**, Beale discloses a method of fault recovery and fault isolation for a system where the nodes are inter-connected in series in a ring. See Column 7, Lines 34-37. Also these nodes are connected to the primary and secondary rings in a daisy-chain configuration. See Column 8, Lines 16-25. Each node detects fault when communication is disrupted over the primary ring. See Column 8, Lines 55-60. In response to the detection of the fault, each station or node will determine whether to use primary or secondary ring. Hence, unless a drastic failure is experienced, the system will try to use as much portion of the primary ring before completely switching to the secondary ring. See Column 9, Lines 35-45. Beale discloses that each node has the ability to diagnose if a fault has been cleared by

continuously listening to "join request" messages using its merging means. See Column 4, Lines 25-37and Column 10, Lines 15-26.

7. Regarding **claim 4**, Beale shows that the nodes connected in a ring have merging means and fault recovery capabilities. See Column 2, Lines 17-24. Also, Beale discloses that these capabilities are implemented at the software level. See Column 4, lines 51-54. Therefore, modules to implement these capabilities have to exist. Each node must have a detection module since each node is equipped with a mechanism to detect faults. Each node also has a recovery module as it is equipped to switch communication from the primary ring to the secondary ring. Also Beale discloses that each node has the ability to diagnose if a fault has been cleared by continuously listening to "join request" messages using its merging means. See Column 4, Lines 25-35 and Column 10, Lines 15-26.

8. Regarding **claims 5, 14, and 17**, Beale shows in Figure 2 that the controller has a transmitter and a receiver (i.e. a transceiver). Beale shows that data is transmitted in one direction on the primary ring. See Column 8, Lines 26-28. Also, Beale discloses that a node identifies a fault when it ceases to detect data on the primary ring. See Column 8, Lines 55-60. Therefore each node has to continuously send data on the primary ring and will only cease to send data only if impaired by a fault. If the system uses both rings simultaneously then data will continuously be sent in different directions and detected in both primary and secondary rings. The nodes will continue to send these Join Acknowledge and Join Request frames as synchronization pulses to establish and maintain ring communications. See Column 13, Lines 20–25.

9. Regarding **claims 6-8**, Beale discloses a system that is able to handle any form of device failure. See Column 2, Lines 67-68 and Column 3, Lines 1-2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Beale (US 4, 709, 365) in view of Shea et al (Evaluation of IEEE 394 Serial Bus For Distribute Data Acquisition, 1998) hereafter Shea.

Regarding **claim 3**, Beale discloses a high-speed data transmission system with dual daisy-chained rings interconnecting nodes in series where each node is equipped with a fault detection and recovery system. Control functionality is distributed across the nodes and when the nodes detect a fault consequently communication path is switched from the primary ring to the secondary ring.

Beale fails to disclose that the nodes can be provided with isolated power from the daisy-chained bus. Beale fails to expressly disclose that the physical layers and link layers of the nodes can be isolated from each other.

Shea after evaluating the IEEE1394 serial bus discloses the isolation feature that comes with IEEE 1394 serial bus. Shea shows that in particular the 1394 PMC IEEE 1394 serial bus provides isolation between the Physical layer Controller and the Link

Layer Controller. See in Figure 3 the block titled Isolation Network and also see Page 2504, Section V, 1st Paragraph. Shea also discloses that the IEEE 1394 serial bus has the ability to provide power to the nodes connected to it. See Page 2540, Section V, 2nd Paragraph. Given the highly effective isolation feature of IEEE-1394 serial bus, all nodes powered from the bus will have isolated power and power failure from such a source and is in effect an isolated physical layer fault zone.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Beale's system to have a daisy-chained ring IEEE-1394 serial bus to take advantage of the isolation feature offered. The motivation is a desire to use a flexible serial bus that is less expensive than fiber but offers high enough speed to interconnect data sources to transmit multimedia applications like video and photo for home entertainment consumers and IEEE 1394 offers these amenities.

11. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Beale (US 4, 709, 365) in view of Hobgood et al (US 5, 383, 191) hereafter Hobgood.

Regarding **claim 9**, Beale discloses a high-speed data transmission system with dual daisy-chained rings interconnecting nodes in series where each node is equipped with a fault detection and recovery system. Control functionality is distributed across the nodes and when the nodes detect a fault consequently communication path is switched from the primary ring to the secondary ring.

Beale fails to disclose that the nodes where the control functionality is distributed can have a configuration switch for stepping through possible configurations and test module to determine if the selected configuration is valid.

Hobgood discloses a dual ring serial network. See Column 2, Lines 30-33. Figure 2 shows a node equipped with reconfiguration switch. Hobgood shows the steps taken choosing possible configurations after a fault is cleared in Figures 5-17. Figure 13 shows a flow chart for a test module to test the selected configuration.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Beale's system to have an enhanced node with a configuration switch, the motivation being able to have a robust network that maximizes network resources utilization by making sure inter-node communication is established with as many nodes as possible.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent is cited to show the use of IEEE-1394 serial bus:

US Patent (6, 612,760) to Ueda et al

The following patent is cited to show the state of fault isolation in a telecommunication system:

US Patent (5, 923, 643) to Higgins et al

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Habte Mered whose telephone number is 571 272 6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571 272 3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HM

RICKY NGO
PRIMARY EXAMINER